

Application No. 09/891,222

second means for supplying field current to said field coil when said self-excited voltage is detected by said first means;

a bypass circuit having a variable resistance, connected between said input terminal and a ground, for bypassing leak current flowing in said armature to the ground; and

third means for decreasing said variable resistance of said bypass circuit when said self-excited voltage is not detected and increasing said variable resistance of said bypass circuit when said self-excited voltage is detected.

8. (Twice Amended) A voltage regulator of a vehicle AC generator including a field circuit having a field coil and a plurality of magnetic poles and an output circuit having an armature coil, said voltage regulator comprising:

a control circuit for supplying field current to said field coil;

a power circuit for supplying electric power to said control circuit to operate the same;

first means, including an input terminal and a detection line connecting said input terminal to said armature coil, for detecting a self-excited voltage generated in said armature coil;

a power drive circuit for controlling said power circuit according to the self-excited voltage induced in said armature coil, said power drive circuit including a pulse conversion circuit for converting said self-excited voltage into a binary pulse signal;

a bypass circuit having a variable resistance, connected between said input terminal and a ground, for bypassing leak current flowing in said armature coil to the ground; and

second means for decreasing said variable resistance of said bypass circuit when said self-excited voltage is not detected and increasing said variable resistance of said bypass circuit when said self-excited voltage is detected.

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9. (Twice Amended) A voltage regulator of a vehicle AC generator for charging a battery, said AC generator including a field circuit having a field coil and a plurality of magnetic poles, an output circuit having a plurality of phase-windings and a rectifier unit for providing DC output power, said voltage regulator comprising:

means, including an input terminal and a detection line connecting said input terminal to a portion of said phase windings, for detecting a self-excited voltage that is induced in said phase-windings by a residual magnetic field;

a switching circuit for controlling field current to be supplied to said field coil;

a switch control circuit for controlling said switching circuit;

a power circuit connected to said switch control circuit; and

a power-drive circuit including a pulse conversion circuit for converting said self-excited voltage into a binary pulse signal, said power-drive circuit driving said power circuit for a predetermined period starting from an edge of said binary pulse signal, wherein said pulse conversion circuit comprises a comparator connected to one of said phase-windings and a flip flop circuit connected to said comparator.

10. (Twice Amended) The voltage regulator as claimed in claim 9, wherein said pulse conversion circuit forms said binary pulse signal having a plurality of times as many frequency as a frequency of an output voltage.

11. (Twice Amended) The voltage regulator as claimed in claim 9, wherein said power-drive circuit forms said binary pulse signal having two times as many frequencies as a frequency of an output voltage from a pair of said phase-windings whose phases are 90° different from each other.

12. (Amended) The voltage regulator as claimed in claim 9, wherein said power-drive circuit drives said power circuit when said rectifier unit provides an output voltage that is higher than a predetermined voltage.